

19

BIOCHEMICAL AND BIOPHYSICAL Research Communications

EDITORS:

Paul Berg

W. D. McElroy

I. C. Gunsalus

Boris Magasanik

B. L. Horecker

Jacques Monod

Howard K. Schachman

Volume 25 • 1966



ACADEMIC PRESS

New York and London

COPYRIGHT© 1966, ACADEMIC PRESS INC.

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the Publishers.

Made in the United States of America

Number 1, October 5, 1966

ERHARD WINTERSBERGER. Occurrence of a DNA-Polymerase in Isolated Yeast Mitochondria	1
G. D. CLARK-WALKER AND ANTHONY W. LINNANE. <i>In Vivo</i> Differentiation of Yeast Cytoplasmic and Mitochondrial Protein Synthesis with Antibiotics	8
IRA PASTAN. The Effect of Dibutylrlyl Cyclic 3',5'-AMP on the Thyroid	14
N. DE GROOT, Y. LAPIDOT, A. PANET, AND Y. WOLMAN. The Synthesis of N-Acetylphenylalanyl-sRNA	17
I. T. FORRESTER AND A. J. WICKEN. A Novel Teichoic Acid-Like Polymer from the Cell Walls of <i>Bacillus coagulans</i> NRS T2007	23
B. B. SINGH AND M. G. ORMEROD. Pyridine Co-Enzymes as Electron Scavengers in Irradiated Dry Proteins	28
WILLIAM GAFFIELD, LIDIA VITELLO, AND YOSHIO TOMIMATSU. Optical Rotatory Dispersion of Egg Proteins. II. Environmental Sensitive Side Chain Chromophores in Conalbumin	35
HARRY MERSMANN, JAMES LUTHY, AND THOMAS P. SINGER. On the Diversity of -SH Groups in DPNH Dehydrogenase and Their Tentative Localization	43
MICHAEL ARTMAN, MICHAEL FRY, AND HANNA ENGELBERG. The Preparation and Characterization of Ribonucleic Acid Obtained by Direct Phenol Extraction of Intact Cells of <i>Escherichia coli</i> from from Low Ionic Environment	49
J. M. FESSENDEN, M. A. DANNENBERG, AND E. RACKER. Effect of Coupling Factor 3 on Oxidative Phosphorylation	54
DAGMAR R. PONZI AND GEORGE E. HEIN. Stereospecific Activation of Chymotrypsin Catalyzed Hydrolyses	60
TADASHI YOSHIDA, ANTHONY MAUGER, BERNARD WITKOP, AND EDWARD KATZ. Influence of Methylproline Isomers upon Actinomycin Biosynthesis	66
INGA MAHLER. Effect of Mitomycin C on Five Excision-Repair Mutants of <i>Bacillus subtilis</i>	73
YOSHIO IMAI AND RYO SATO. Activation and Inhibition of Microsomal Hydroxylation by Ethyl Iso-cyanide	80
EARL E. JACOBS, E. C. ANDREWS, W. CUNNINGHAM, AND F. L. CRANE. Membraneous Cytochrome Oxidase Purification, Properties and Reaction Characteristics	87
EARL E. JACOBS, F. H. KIRKPATRICK, JR., E. C. ANDREWS, W. CUNNINGHAM, AND F. L. CRANE. Lipid-Free Soluble Cytochrome Oxidase Purification, Properties and Reaction Characteristics	96
MAYO UZIEL. Stability of 4,4'-di (Thiouridine) and 4-Thiouridine in Alkali	105
M. D. ORR AND E. VITOLS. Thioredoxin from <i>Lactobacillus leichmannii</i> and its Role as Hydrogen Donor for Ribonucleoside Triphosphate Reductase	109
MICHAEL H. KLAPPER, GRANT H. BARLOW, AND IRVING M. KLOTZ. Evidence from Sedimentation Velocity for Dissociation Equilibrium in Hemerythrin	116
MICHAEL REVEL AND FRANCOIS GROS. A Factor from <i>E. coli</i> Required for the Translation of Natural Messenger RNA	124
S. A. MARGOLIS, H. BAUM, AND G. LENAZ. Observations on the Effect of D ₂ O on Energy-Linked Reactions of the Mitochondrion	133
RONALD C. FRASER. Polypeptide Chains of Chick Embryo Hemoglobins	142
HIDEO MATSUI AND ARNOLD SCHWARTZ. Kinetic Analysis of Ouabain-K ⁺ and Na ⁺ Interaction on a Na ⁺ , K ⁺ -Dependent Adenosinetriphosphatase from Cardiac Tissue	147

Number 2, October 20, 1966

JONATHAN P. MILLER, L. E. MICHAEL CRAWFORD, ROBERT C. SONDERS, AND EARL V. CARDINAL. Distribution and Excretion of ¹⁴ C-Cyclamate Sodium in Animals	153
S. NAGASAKI, N. P. NEUMANN, P. ARNOW, L. D. SCHNABLE, AND J. O. LAMPEN. An Enzyme which Degrades the Walls of Living Yeast	158
ANDREW V. SCHALLY, CYRIL Y. BOWERS, TOMMIE W. REDDING, AND JOHN F. BARRETT. Isolation of Thyrotropin Releasing Factor (TRF) from Porcine Hypothalamus	165
ERNESTO SCOFFONE, ANGELO FONTANA, AND RANIERO ROCCHI. Selective Modification of the Tryptophan Residue in Peptides and Proteins Using Sulfenyl Halides	170
L. L. HOUSTON AND K. A. WALSH. A Partially Active Trypsin Induced by Limited Acetylation	175
KINJI TSUKADA, C. MAJUMDAR, AND IRVING LIEBERMAN. Liver Polyribosomes and Phospholipase A	181
D. T. DENNIS AND T. P. COULTATE. Phosphofructokinase, A Regulatory Enzyme in Plants	187
TOSHIYA TAKANO AND TSUTOMU WATANABE. Specific Inactivation of Infectious λ DNA by Sonicates of Restrictive Bacteria with R Factors	192

TASUKU HONJO, SIGENOBU NAKAMURA, YASUTOMI NISHIZUKA, AND OSAMU HAYAISHI. Stoichiometric Utilization of Adenosine 5'-Triphosphate in Nicotinate Ribonucleotide Synthesis from Nicotinate and 5-Phosphoribosyl-1-Pyrophosphate	199
CHARLES J. CHESTERTON. The Subcellular Site of Cholesterol Synthesis in Rat Liver	205
YOSHITAKE MANO AND HIROSHI NAGANO. Release of Maternal RNA from Some Particles as a Mechanism of Activation of Protein Synthesis by Fertilization in Sea Urchin Eggs	210
YOSHITAKE MANO. Role of a Trypsin-like Portease in "Informosomes" in a Trigger Mechanism of Activation of Protein Synthesis by Fertilization in Sea Urchin Eggs	216
AGNE LARSSON AND JOHN B. NEILANDS. Significance of Ribonucleotide Reduction in the Biosynthesis of the Deoxyribose Moiety of Regenerating Rat Liver Deoxyribonucleic Acid	222
GEORGE GORIN AND WALTER E. GODWIN. The Reaction of Iodate with Cystine and with Insulin	277
PHILIP LEDER AND HELA BURSZTYN. Initiation of Protein Synthesis II. A Convenient Assay for the Ribosome-dependent Synthesis of N-formyl-C ¹⁴ -methionylpuromycin	233
KONOSHIN ONODERA AND SHIGEHITO HIRANO. The Conformation of Some Pyranose Moieties in the Molecules of α -D-Hexopyranose-1-Phosphates, Purine and Pyrimidine 5'-(α -D-Pyranosyl Pyrophosphates), and Mucopolysaccharides	239
F. F. JOBSIS AND M. J. O'CONNOR. Calcium Release and Reabsorption in the Sartorius Muscle of the Toad	244
GORDON GUROFF, MORTON LEVITT, JOHN DALY, AND SIDNEY UDENFRIEND. The Production of Meta-Tritietyrosine from <i>p</i> -Tritiophenylalanine by Phenylalanine Hydroxylase	253
DARREL D. GWINN AND CURTIS B. THORNE. Helper Phage-Dependent Transfection in <i>Bacillus subtilis</i>	260
ERRATA	263

Number 3, November 11, 1966

MITSUYOSHI MATSUO AND MIKIO YAMAZAKI. Biosynthesis of Sinigrin. III	263
GEORGE FAREED, KARIN A. IPPEN, AND RAYMOND C. VALENTINE. Active Fragments of a Filamentous Bacteriophage	277
JEANNE PUJOLLE, B. RIBADEAU-DUMAS, J. GARNIER, AND R. PION. A Study of N-Casein Components. I-Preparation. Evidence for a Common C-terminal Sequence	281
N. HOLLANDER AND Y. W. CHIU. <i>In Vitro</i> Binding of Cortisol-1,2- ³ H by a Substance in the Supernatant Fraction of P1798 Mouse Lymphosarcoma	293
MURIEL H. BLANCHARD AND MURRAY VERNON KING. Evidence of Association of Glucagon from Optical Rotatory Dispersion and Concentration-Difference Spectra	299
HARRY DARROW BROWN, S. K. CHATTOPADHYAY, AND A. PATEL. Sarcoplasmic Reticulum ATPase on a Solid Support	301
A. J. OSBAHR, R. W. COLMAN, AND S. M. PATSY. Further Investigation of the Peptides from Canine Fibrinogen	301
GEORGE P. STUDZINSKI, LARRY S. COHEN, JAMES ROSEMAN, AND JEANNE L. SCHWEITZER. Elevation of Deoxyribonuclease Activities in HeLa Cells Treated with Selective Inhibitors of DNA Synthesis	311
G. JOHANNIN AND J. YON. Some Evidence for the Existence of Two Non-covalent Complexes before the Acylation Step during the Tryptic Hydrolysis of Benzoyl-Arginine Para-Nitroanilide	321
A. BALLIO, G. MARINO, AND V. SCARDI. Influence of an S-(α,β -Dicarboxyethyl) Cysteine Residue on the Resolution of Pig-Heart Aspartate Aminotransferase	321
RODGER D. KOBES AND EUGENE E. DEKKER. Beef Liver 2-Keto-4-Hydroxyglutarate Aldolase: Substrate Stereospecificity and Schiff Base Formation with Pyruvate and Glyoxylate	321
JENS HEDEGAARD, JEAN BREVET, AND JEAN ROCHE. Imidazole Lactic Acid: An Intermediate in L-Histidine Degradation in <i>Escherichia coli</i> B	331
IRENE WITT AND LUDWIG HELMEYER. Regulation of Pyruvate Decarboxylase (E.C.4.1.1.1) Synthesis by Coenzyme Induction in <i>Saccharomyces Cerevisiae</i>	341
ROBERT A. ALTENBERN. Apparent Genomic Mapping of <i>Staphylococcus aureus</i> by a New Method ..	341
J. QUARTERMAN, C. F. MILLS, AND W. R. HUMPHRIES. The Reduced Secretion of, and Sensitivity to Insulin in Zinc-Deficient Rats	351
CHARLES E. MIZE, DANIEL STEINBERG, JOEL AVIGAN, AND HENRY M. FALES. A Pathway for Oxidative Degradation of Phytanic Acid in Mammals	351
JOHN GIOVANELLI AND S. HARVEY MUDD. Enzymatic Synthesis of Cystathionine by Extracts of Spinach, Requiring O-Acetylhomoserine or O-Succinylhomoserine	361

Number 4, November 22, 1966

CAROLE HALL, MIJI WU, F. L. CRANE, H. TAKAHASHI, S. TAMURA, AND K. FOLKERS. Piericidin A: A New Inhibitor of Mitochondrial Electron Transport	373
M. RAMAKRISHNA AND P. R. KRISHNASWAMY. Formation of Enzyme Bound Carbon Dioxide in the Reductive Carboxylation of Alpha-Ketoglutarate by Isocitrate Dehydrogenase	378
JOHN DE JERSEY, MARIA T. C. RUNNEGAR, AND BURT ZERNER. Oxazolinones as Enzyme Acylating Agents	383
S. A. MORENKOVA, M. G. KRITZMAN, AND A. S. KONIKOVA. Modes of Insulin Resynthesis in Liver ..	389
G. W. NOTANI, A. J. MUNRO, AND P. M. KNOPF. A Charge Difference between an Intracellular and Secreted Mouse Myeloma Globulin	395
G. VECCHIO, M. SALVATORE, AND G. SALVATORE. Biosynthesis of Thyroglobulin <i>in Vivo</i> : Formation and Polymerization of Subunits in the Rat and Guinea Pig	402
YUKIO SHIGETA, KANJI IZUMI, AND MITSUHIKO TANIWA. The Role of Coenzyme Q on Glucose Oxidation and Lipogenesis of Rats <i>in Vivo</i> and <i>in Vitro</i>	409
I. MILLER, R. PLAPP, AND O. KANDLER. The Amino Acid Sequence of the Serine Containing Murein of <i>Butyobacterium rettgeri</i>	415
WILLIAM S. BECK, ROBERT H. ABELES, AND WILLIAM G. ROBINSON. Transfer of Hydrogen from Cobamide Coenzyme to Water during Enzymatic Ribonucleotide Reduction	421
KENDRIC C. SMITH. An Isomer of the Cyclobutane-Type Thymine Dimer Produced in the Presence of Adenine	426
MARCEL E. NIMNI. Extraction of α and β Components from Insoluble Collagen by Thiol Compounds	434
FRITZ FITTLER AND ROSS H. HALL. Selective Modification of Yeast Seryl-t-RNA and its Effect on the Acceptance and Binding Functions	441
J. RÍMAN. Evidence for Uracil Nucleotide-Rich Segments in the RNA Molecule of the Virus BAI Strain A (Avian Myeloblastosis)	447
NATHAN BROTH, JAMES GOODWIN, AND HENRY FALES. <i>In Vivo</i> and <i>in Vitro</i> Formation of 2,3-Dihydroxybenzoylserine by <i>Escherichia coli</i> K ₁₂	454
P. K. MAITRA. Pulsating Glucose Flux in Yeast	462
EDWIN M. LANSFORD, JR., NANCY M. LEE, AND WILLIAM SHIVE. Regulation by Lysine of Production of Threonine-Sensitive Aspartokinase	468
D. J. BROCK AND KONRAD BLOCH. The Effect of Glutathione and Glucose-6-Phosphate on Fatty Acid Synthesis in <i>E. coli</i>	473
MARCOS ROJKIND AND HÉCTOR JUÁREZ. The Nature of the Collagen Defect in Lathyrism	481
ERRATA	487

Number 5, December 7, 1966

RIKIO TOKUNAGA AND SEIYO SANO. Nonenzymic Photoheme Formation	489
SPYRIDON G. A. ALIVISATOS, FRIEDA UNGAR, AND SURENDRA S. PARMAR. Effects of Monoamine Oxidase Inhibitors on the Labeling of Subcellular Fractions of Brain and Liver by ¹⁴ C- Serotonin	495
E. COLLEEN MOORE AND SEYMOUR S. COHEN. Reduction of Uridine Diphosphate in <i>E. coli</i> 15T ⁻	501
JEAN RENSON, JOHN DALY, HERBERT WEISSBACH, BERNARD WITKOP, AND SIDNEY UDENFRIEND. Enzymatic Conversion of 5-Tritiotryptophan to 4-Tritio-5-Hydroxytryptophan	504
R. A. CHAPLAIN. Control of Insect Myosin Adenosinetriphosphatase by the Binding of the Substrate to an Allosteric Site	514
OSCAR GAWRON, ANDREW J. GLAID, III, KISHAN MAHAJAN, GERALD KANANEN, AND MARIE LIMETTI. Isotope Effects on the Kinetics of the Succinic Dehydrogenase Catalyzed Oxidation of L-Chlorosuccinate	518
ALAN B. PRITCHARD, DONALD B. MCCORMICK, AND LEMUEL D. WRIGHT. Optical Rotatory Dispersion Studies of the Heart Denaturation of Avidin and the Avidin-Biotin Complex	524
KOZI ASADA, GORO TAMURA, AND ROBERT S. BANDURSKI. Cleavage of Sulfite Reductase into Two Non-dialyzable Components and Stimulation of Reductase Activity by Nucleotides	529
MILTON B. YATVIN AND THOMAS P. LATHROP. Polyribosome Response in Regenerating Liver following Ionizing Radiation	535
ARTHUR P. GROLLMAN AND DONALD M. MARCUS. Enzymatic Incorporation of Fucose into Blood Group H Substance	542
RALPH R. MEYER. Non-specific Incorporation of H ³ -Thymidine into the Chloroplasts of <i>Spirogyra grevilleana</i>	549
LEON J. LEWANDOWSKI AND BARBARA L. BROWNSTEIN. An Altered Pattern of Ribosome Synthesis in a Mutant of <i>E. coli</i>	554
A. D. KELMERS. Preparation of a Highly Purified Leucine Transfer Ribonucleic Acid	562

Number 6, December 19, 1966

IRENA PIETRZYKOWSKA AND D. SHUGAR. Replacement of Thymine by 5-Ethyluracil in Bacteriophage DNA	56
J. HAREL, B. NATAF, L. HAREL, AND J. IMBENOTTE. High Molecular Weight DNA-like RNA in Rat Thyroid	57
E. N. BREWER AND H. P. RUSCH. Control of DNA Replication: Effect of Spermine on DNA Polymerase Activity in Nuclei Isolated from <i>Physarum polycephalum</i>	57
B. S. SUKHAREVA AND YU. M. TORCHINSKY. Some Optical Properties of Bacterial Glutamate Decarboxylase	58
SHUZO OTANI, TAKETO YAMANAI, YOSHITAKA SAITO, AND SHOHEI OTANI. Fractionation of an Enzyme System Responsible for Gramicidin S Biosynthesis	59
W. T. GRIFFITHS. 'Plastoquinone B' — Some Structural Studies	59
DAVID SCHACTER, NANCY JOHNSON, AND MARY ANN KIRKPATRICK. Energy Coupling for Galactoside Accumulation in <i>Escherichia coli</i>	60
YOSHITAKA MAKI, SHOZO YAMAMOTO, MITSUHIRO NOZAKI, AND OSAMU HAYAISHI. Crystallization of Imidazoleacetate Monooxygenase and its Characterization as Flavoprotein	60
H. C. NEU, D. F. ASHMAN, AND T. D. PRICE. The Release of the Acid-Soluble Nucleotide Pool of <i>E. coli</i> by EDTA-Tris	61
GORDON GUROFF, KAZUE KONDO, AND JOHN DALY. The Production of Meta-Chlorotyrosine from Parachlorophenylalanine by Phenylalanine Hydroxylase	62
L. LORAND, H. H. ONG, B. LIPINSKI, N. G. RULE, J. DOWNEY, AND A. JACOBSEN. Lysine as Amine Donor in Fibrin Crosslinking	62
P. CHAMBON, J. D. WEILL, J. DOLY, M. T. STROSSER, AND P. MANDEL. On the Formation of a Novel Adenylic Compound by Enzymatic Extracts of Liver Nuclei	63
LUCIA B. ROTHMAN AND ENRICO CABIB. Regulatory Properties of Yeast Glycogen Synthetase	64
K. F. WONG AND E. A. COSSINS. Resolution of Aspartate Aminotransferase from a Higher Plant Source	65
D. V. RICHMOND AND E. SOMERS. Sulfhydryl Status and the Germination of <i>Neurospora crassa</i> Conidia	65
T. O. HENDERSON AND J. J. McNEILL. The Control of Fatty Acid Synthesis in <i>Lactobacillus plantarum</i>	66
HARRY WALTER AND PER-AKE ALBERTSSON. Resolution of Two Populations of Reticulocytes by Counter-Current Distribution	67
ABRAHAM W. HSIE AND H. V. RICKENBERG. A Mutant of <i>Escherichia coli</i> Deficient in Phosphoenolpyruvate Carboxykinase Activity	67
JAMES G. WETMUR, NORMAN DAVIDSON, AND J. V. SCALETTI. Properties of DNA of Bacteriophage N1, a DNA with Reversible Circularity	68
E. J. HEWITT AND D. P. HUCKLESBY. Molecular Exclusion Chromatography of Nitrite and Hydroxylamine Reductases from Plants with Reference to Electron Donor Systems	68
G. M. FULLER AND R. F. DOOLITTLE. The Formation of Crosslinked Fibrins: Evidence for the Involvement of Lysine ϵ -Amino Groups	69
AUTHOR INDEX	70